

REMARKS

I. Claim Objections

In the Office Action, the Examiner has objected to Claim 1 since Claim 1 ends with the word "and". Applicant has amended Claim 1 to over come the Examiner's objection.

In the Office Action, the Examiner has also objected to Claim 21. The Examiner contends that there is insufficient antecedent basis for the term "means". Applicant has amended Claim 21 to over come the Examiner's objection.

II. 35 U.S.C. § 102(e)

In the Office Action, the Examiner has rejected Claims 1-2, 4-5, 8 and 11-12 as allegedly being anticipated by Isaak, U.S. Patent 6,351,029. Applicant respectfully disagrees.

Applicant claims:

A semiconductor stacking structure comprising:
a semiconductor die;
a flexible tape substrate having at least one metal layer for electrical connections wherein the flexible tape substrate is coupled to a bottom surface of the semiconductor die;
wirebonds for electrically coupling the semiconductor die to the metal layers; and
an encapsulant covering the semiconductor die and the wirebonds;
wherein the flexible tape substrate further comprises a plurality of flap portions and each flap portion is folded along a side surface and an upper surface of the encapsulant;
wherein the flap portions do not over lap one another and cover only a portion of the upper surface of the encapsulant;
wherein the folded flap portions have an exposed metal layer.

In contrast, Isaak discloses coupling either a flip chip or a BGA semiconductor package to a flexible substrate. The flip chip or BGA package will have a plurality of contacts (solder bumps/solder balls) on the bottom of the package. The plurality of contacts is coupled to contact pads on the flexible substrate thereby coupling the semiconductor package to the flexible substrate (See Column 3, lines 10-17 and Column 9, lines 1-7). Applicant claims a semiconductor die coupled to the flexible substrate. Wirebonds electrically couple the semiconductor die to the metal layers on the flexible substrate. An encapsulant covers the first semiconductor die and the wirebonds.

To further differentiate Applicant's claimed invention, in Claim 29 Applicant claims in part:

an adhesive for coupling the semiconductor die to the flexible tape substrate.

As Applicant has already discussed above, Isaak uses a reflow process to couple the plurality of contacts (solder bumps/solder balls) on the bottom of the semiconductor package to the plurality contact pads on the flexible substrate.

Therefore, for the reasons stated above, Applicant believes that the rejections under 35 U.S.C. §102(e) has been overcome. Such action is earnestly solicited.

III. 35 U.S.C. § 103(a)

In the Office Action, the Examiner has rejected Claims 3, 7, 9 and 10 under 35 U.S.C. 35 U.S.C. § 103(a) as allegedly being unpatentable over Isaak, U.S. Patent 6,351,029 as applied to Claim 1. Applicant respectfully disagrees.

As already discussed above, Isaak discloses coupling either a flip chip or a BGA semiconductor package to a flexible substrate. The flip chip or BGA package will have a plurality of contacts (solder bumps/solder balls) on the bottom of the package. The plurality of contacts is coupled to contact pads on the flexible substrate thereby coupling the semiconductor package to the flexible substrate (See Column 3, lines 10-17 and Column 9, lines 1-7). Applicant claims a semiconductor die coupled to the flexible substrate. Wirebonds electrically couple the semiconductor die to the metal layers on the flexible substrate. An encapsulant covers the first semiconductor die and the wirebonds. Applicant uses an adhesive for coupling the semiconductor die to the flexible tape substrate. Isaak uses a reflow process to couple the plurality of contacts (solder bumps/solder balls) on the bottom of the semiconductor package to the plurality contact pads on the flexible substrate.

Therefore, for the reasons stated above, Applicant believes that the rejections under 35 U.S.C. §103(a) has been overcome. Such action is earnestly solicited.

III. Conclusion

Applicant respectfully submit that Applicant's claimed invention is deserving of patent protection because it describes a useful and functioning apparatus which is patentably distinguishable over the prior art.

In conclusion, Applicant respectfully submit that this Amendment Letter, including the amendments to the Claims, and in view of the Remarks offered in conjunction therewith, are fully responsive to all aspects of the objections and rejections tendered by the Examiner in the Office Action. Applicant respectfully submits that he has persuasively demonstrated that the above-identified Patent Application, including Claims 1-12 and 21-28 are in condition for allowance. Such action is earnestly solicited.

If the foregoing does not place the case in condition for immediate allowance, the Examiner is respectfully requested to contact the undersigned for purposes of a telephone interview.

If there are any fees incurred by this Amendment Letter, please deduct them from our Deposit Account NO. 23-0830.

Respectfully submitted,



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